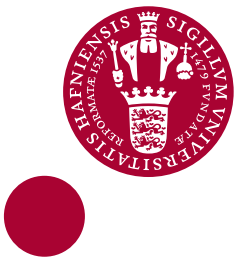

Dwindling sufficiency of local crop production

implications for food security

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A region wide assessment of land system resilience and climate robustness in the agricultural frontline of Sahel
- the triple exposure of local livelihood strategies and food provision to climate change, population pressure and globalization

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Dwindling sufficiency of local crop production: Implications for food security

- Local cereal production in the Sahelian agro-ecological zone is known to be highly fluctuating – depending on local rain conditions, field acreage and labor availability
- The important issue of food security is often portrayed as intimately related to the sufficiency of local food production to meet food requirements
- In reality, local communities' ability to meet peoples' daily food demand has increasingly been decoupled from the local crop production – local livelihoods are more and more based on income from other sources than subsistence agriculture
- Hence, the notions of 'carrying capacity' and 'overpopulation' need to be viewed through other lenses than that of the classical agricultural subsistence

The following pages illustrate – with examples from the Northern part of Burkina Faso and Niger – how local agricultural activities have lost their prime importance as the main source of food

Photos below: Sorghum and millet fields in Biidi-2 and Yomboli, Oudalan province, Burkina Faso.

Impact of a cereal bank on field expansion

Traditionally, people in agro-pastoral villages like Yomboli in Northern Oudalan province have strived to cultivate enough millet to cover as much as possible of local needs. As the rainy season is highly unpredictable they would tend to prepare as large fields as possible in order to ensure the local availability of cereals. They did not always succeed harvesting enough to cover local needs, but they invested labor in preparing and cultivating the fields.

Hence, the change in size of the cultivated area largely corresponded to the increase in population. More people meant field encroachment. In recent years, this trend has been changed.

One of the explanations is that a cereal bank was constructed in Yomboli 1989. Since then, it has served to provide the villagers with millet on credit or at highly subsidized prices. As subsistence needs then could be secured through the bank, fields were abandoned.

Photo below: Cereal bank, Yomboli

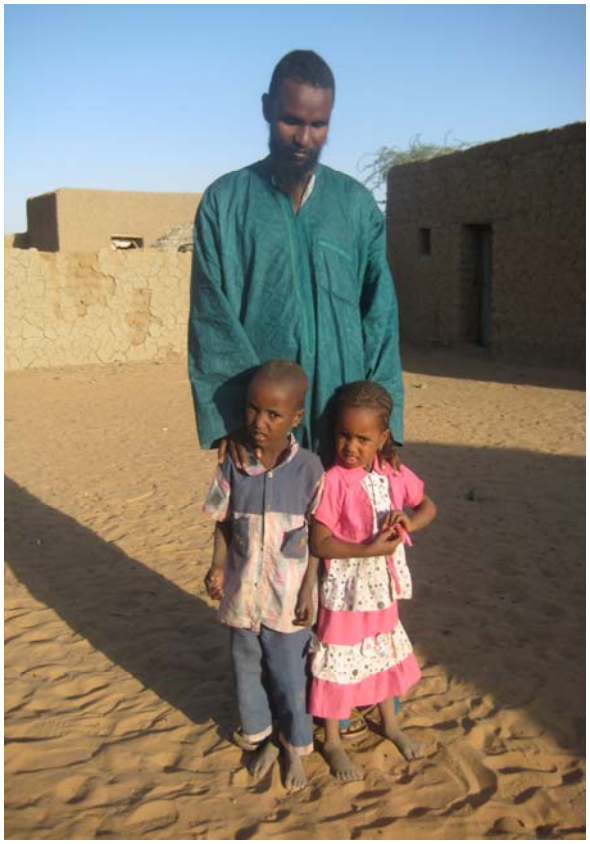

Photo above: Peul family, Dinkari, Niger.

Peul agro-pastoralist strategies – a time bomb?

A large number of the villages in the Diffa region (SE-Niger) are populated with sedentary peul. They have a strong tradition for livestock rearing and now combine this with dry-land cultivation of millet. The declining rain and the increasing population pressure have made it necessary for them to expand their fields. Until recently, the land has been sufficient for the field encroachment.

Lately, however, land has become scarce. They have only managed to feed the families because they have sold out of their livestock to be able to buy millet.

Asked how they envisage dealing with the problem of the gradual depletion of the resources available to provide for the families, they have no answers or suggested solutions. They will have to think about it when they have used the remaining livestock resources.

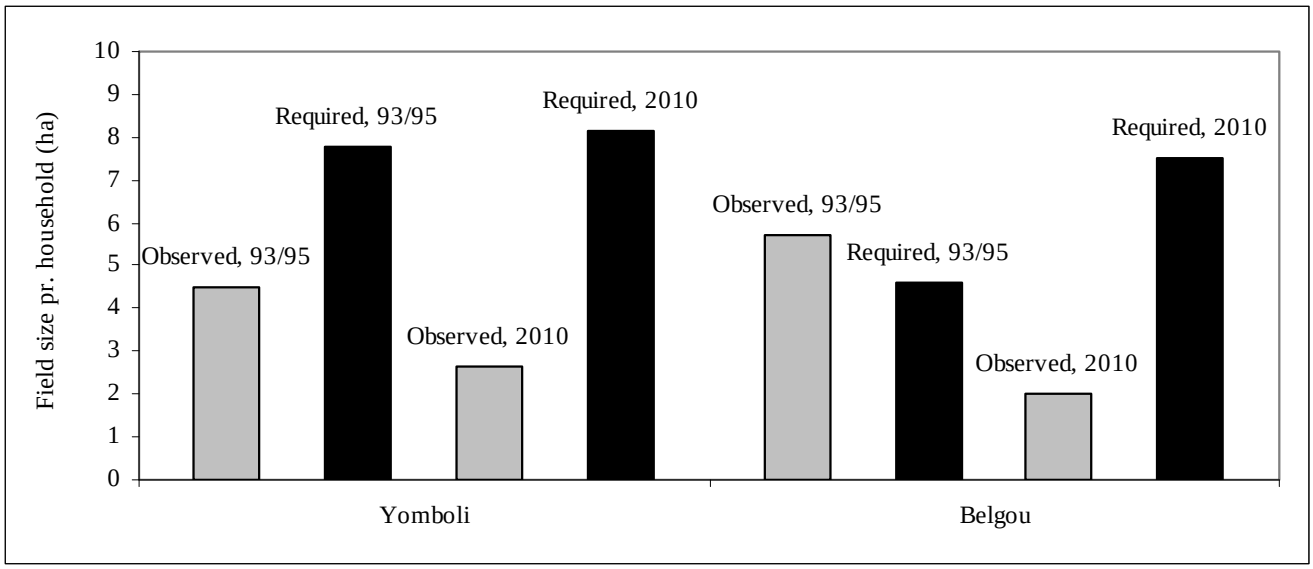

Figure 1: Observed field size compared to required field size pr. household for self-sufficiency in Yomboli and Belgou in 1993/1995 and 2010.

Duration of harvest – local sufficiency

Rather than relying on crop production in the attempt to reduce food insecurity, Sahelian villagers engage in seasonal migration, livestock rearing and gold-digging. Livestock as well as gold constitute in contrast to millet a reserve of wealth.

The diagram shows the amount of hectares cultivated per household in two selected villages, in 1995 and 2010 respectively. If compared to the required acreage (considering the changing sizes of the households), it is apparent that the 2010 acreage is high inadequate to produce enough food the meet the local requirements.

In Yomboli, the harvest meets only 5 months (on average) of the households' food requirements. In other villages in Oudalan, it has been found that only the largest and most efficient households produce enough food to cover between 7 and 9 months of the households' needs. Thus, cereal production is no way near fulfilling the food requirements.

Better conditions for market access as well as emerging markets have implied that villagers embrace weekly visits to markets in to trade livestock to provide money for food purchase.

Photos above: Millet harvest, Oudalan; livestock market, Kojimeri, Niger.

The challenge of feeding a growing population

Photo: Conversation about population growth, Tintabora, Oudalan, Burkina Faso.

Local people do not see population pressure as an immediate threat to their livelihoods and food security. Hamadou Farka in Tintabora, Oudalan Province, says:

'There has been a substantial increase in the population of my village. And the population will continue to increase in the future. This means that we will need to change our ways of making a living, because there is not enough land for everyone. My father could live of his parcel of agricultural land, but he had to divide his parcel between five sons, and it is like that for many people here. In the future we will need to migrate even more to Côte d'Ivoire or Ghana and make small businesses'.

'I don't see the population increase as a problem. It is only a problem if there is not enough to eat. There are people talking about family planning, but that will not be accepted in our culture. The important thing is to earn enough to feed ourselves and to be in good health'.

About LaSyRe

LaSyRe (Land Systems Resilience and Climate Robustness in the Agricultural Frontline of the Sahel)
is a Danida-FFU funded project.

It was initiated in 2009 and will terminate in 2013.

The research partners include:

Department of Geoscience and Natural Resource Management, University of Copenhagen, Denmark; INERA, CNRST and Department of Geography, University of Ouagadougou, Burkina Faso, ISE, University of Dakar, Senegal; Department of Geography, University of Niamey, Niger

For more information, see www.lasyresahel.ku.dk

LaSyRe briefs extract details from the more comprehensive research reports in order to make the easily available to a broader user community, e.g. policy makers.

The current brief is primarily based on the following publications:

Reenberg, A., Maman, I. and Oksen, P. (forthcoming). Twenty years of land use and livelihood changes in SE-Niger: Obsolete and shortsighted adaptation to climatic and demographic pressures?

Rasmussen, L.V., Rasmussen, K., Reenberg, A. & Proud, S.R. (2012). A system dynamics approach to land use changes in agro-pastoral systems on the desert margins of Sahel. Agricultural Systems 107C, 56-64

Rasmussen, L.V. & Reenberg, A. (forthcoming): Multiple outcomes of cultivation in the Sahel: A call for a multifunctional view of farmers' incentives.

Local voices from Burkina Faso and Niger: Sahelien people's multiple exposures to climate, population pressure and globalization Eds. Anette Reenberg, Laura Vang Rasmussen and Frederik Brønd. LaSyRe WORKING PAPER NO 7-2012

Rasmussen, L.V. & Reenberg, A. (2012). Land use rationales in desert fringe agriculture. Applied Geography 34:595-605.

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